

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No. : 10/501,760  
Applicants : Guenther HAMBITZER, et al.  
Filed : July 19, 2004  
TC/A.U. : 1795  
Examiner : Jonathan Crepeau  
  
Docket No. : 2945-173  
Customer No. : 06449  
Confirmation No. : 1108

**SECOND DECLARATON OF Christiane RIPP PURSUANT TO 37 C.F.R. § 1.132**

I, Christiane RIPP, hereby declare and state as follows:

1. I studied chemistry at the University of Karlsruhe and graduated with a diploma in chemistry ("Dipl.-Chem.") in February 1995. From March 1995 to April 1999 I did post-graduate studies and thesis work. I received a Ph.D ("Dr. rer. nat"), also from the University of Karlsruhe. The scientific experimental work for my thesis was performed at Fraunhofer Institute for Chemical Technology at Pfintzal/Germany. From July 2000 to July 2002 I was employed as chemical scientist at Fortu Bat Batterrien GmbH in Pfintzal/Germany. Since then I have worked as a freelance chemist and taken care of my two children.

2. Both during my Ph.D work and during my employment at Fortu Bat, I participated in experimental work with electrochemical battery cells. I am a co-inventor of international patent application PCT/DE 03/00103 and of the corresponding US patent application to which this Declaration refers. My thesis work was part of a cooperation between the Fraunhofer Institute for Chemical Technology and Fortu Bat. Therefore, I was also involved

in the development work of Fortu Bat on which international patent application PCT/DE 00/00177 and the corresponding US patent 6,709,789 are based.

3. As a freelance chemist I work inter alia for Fortu Research GmbH, Karlsruhe, and Fortu Intellectual Property AG, Switzerland. The CEO of both companies is Dr. Günther Hambitzer, inventor and successor in title of the above identified patent and patent application, respectively. As a consultant of these companies, I have full access to all documentation concerning the experimental work from which these two patents resulted and also of all scientific results that were generated after the initial filing of the patent applications.

4. I have carefully studied the file of the above identified US patent application, including the Office Action of May 15, 2009, the advisory action of February 27, 2009, and the applicant's reply of April 13, 2009 as well as the prior art cited by the Examiner of the USPTO.

5. The Office Action of May 15, 2009 asserts that it would have been obvious to use the material of the carrier body made of a chemically inert, rigid material upon which salt is coated in a volume proportion of at least 40%. An exemplary material used as the carrier body in producing a cell according to this embodiment of the '789 patent is a sheet of T1798 nonwoven composite fabric manufactured by Viledon.

6. The manufacturer data sheet for the composite fabric lists the weight of this material as  $30\text{g/m}^2$  and the thickness as 0.33mm.

7. A  $1\text{m}^2$  sheet of the composite fabric with a thickness of 0.33mm (0.00033m) has a volume of  $0.00033\text{ m}^3$  ( $1\text{m}^2 \times 0.00033\text{m}$ ). The volume of  $0.00033\text{m}^3$  is equal to  $330\text{ cm}^3$ . Given that a  $1\text{m}^2$  sheet of this material weighs 30 g, the weight per unit volume of this material is  $0.09\text{g/cm}^3$  ( $30\text{g}/330\text{cm}^3$ ).

8. The density of glass such as used in the construction of the fabric sheet is  $2.5\text{g}/\text{cm}^3$  meaning that a  $330\text{cm}^3$  sheet of solid material (100% volume proportion) would weigh 825g. Taking the weight of the porous fabric sheet of 30g divided by the weight of a sheet of solid material gives an estimated volume proportion of 3.6% ( $30\text{g}/825\text{g}$ ).

9. As can be seen from the above calculation, a sheet of the exemplary material used in practicing this embodiment of the '789 patent has a much lower volume proportion of inert material than in the present claims. This very low volume proportion of inert carrier material is required to allow enough space for the salt to be coated onto the inert carrier material as well as to allow enough space for the active mass to grow into the porous structure.

10. I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Date:

8/28/2009

C. Zipp